**Marketing Analytics**
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**Lecture 19**
**Demand Forecasting and Pricing (Contd.)**

Hello everybody. Welcome to Marketing Analytics course. This is module four where we are discussing about Demand Forecasting and Pricing and this is Doctor Swagato Chatterjee from VGSOM, IIT Kharagpur, who is taking this course for you. This video will be a small video on a classic case of pricing which we call bundle pricing. And this is a very, very nice examples will be discussed on this and I hope you will enjoy this.

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So, if you come to the excel file that has been shared with you, there will be one particular page where bundles basics will be, bundling basics will be talked about. So think about a situation, so bundling is actually applicable for those kind of situations where there are multiple products are there and people's preference are generally have a negative correlation. So, for example, one guy has let us say higher preference for CPU and lower preference for monitor and the another guys has the opposite.

So, think about this situation here. So, here in this situation customer, C1 and C2 is customer 1 and customer 2. So, customer 1 wants to pay the, willingness to pay has been written there. So, customer 1 wants to pay around 900 rupees or let us say 900 dollars for, 900 dollars is too much actually. 900 (rup), 900 dollars for a CPU and 400 dollars for a monitor. So this is his willingness to pay. What is willingness to pay? That means that if I offer him a CPU at 800

rupees, he will buy. At 850 rupees, he will buy, at 900 rupees he will be indifferent between buying and not buying.

901 rupees, he will not buy. So, that is the maximum possible money that he is willing to pay. And the moment I offer something lower than this, he definitely buys. So that is something that is the situation. So customer 2's willingness to pay is 400 rupees for CPU and 900 rupees for monitor. So, he is a guy who is a gamer probably or probably a video guy, not even the gamer, he watches movies and etcetera in a big screen. So, his CPU is of lower this thing but his monitor is very big because he wants to watch the movie in a big screen.

On the other hand, the first guy is a coder. Let us say for him the CPU, power of the CPU matters. I am the seller and I have to create the pricing. So, let us say if I sell the CPU at 10 dollars, how many people will buy out of these two? Out of these two how many people will buy? Both will buy because both has willingness to pay higher than 10 rupees. So, I will add 20 dollars then, sorry, dollars, 10 dollars, 20 dollars then.

So, if I sell it at 100 dollars, both will buy; 200 dollars I earn. If I sell it on 200 dollars, both will buy, so I will get 400 dollars. So, if I keep on increasing like that, if I buy at 400 dollar if I sell it at 400 dollars, then both buys and I get 800 dollars. If I sell it at 401 dollar, only one guy buys. C1 buys, C2 does not buy. Then I get only 401 dollars. So, then 401, 405, 500, 600, only one guy buys. So, 900 dollars also only one guy buys.

So, if I sell it at 400 dollars, both buys. If I sell it at 900 dollars, only one guy buys. If I sell it at 400 dollars because both buys, I get 800 dollars. If I sell it at 900 dollars, because one person is buying I will get 900 dollars. So, the maximum revenue in this case for CPU is 900 dollars. Now, the similar operation if you do it here, here also you get the maximum revenue to be 900 dollars because you can sell the monitor at 900 dollars, customer 2 buys, customer 1 does not buy, that is the maximum possible revenue that you can generate.

Now if this is the situation and if I do individual pricing separately, so then the maximum total revenue that I generate is 900+900=1800 dollars. Fair enough. Can I add more? What if I sell it as a bundle? If you sell it as a bundle, this guy will buy both if the overall offering is up to 1300 dollar. This guy will also do the same thing if the overall offering is 1300 dollar. If both of these thing together if I give them in 1300 dollars, they will buy both, they will buy the whole bunch because that is the willingness to pay, collective willingness to pay.

So then if I sell it at 1300 dollars, maximum revenue that I generate is 1300+1300=2600 dollars. So by bundling I am making more money, 800 dollars more money which is a huge thing. So, this is a I would say a classic case, it might not be that much high but you can make more money. So that is where the beauty of bundling lies. I will give another example. Let us say there is a same thing where there is customer 1, customer 2 and customer 3 and customer 4 and these are the prices that they willingness to pay are given. And the last one is the unit cost. Can we do the operation once more carefully?

So, let us say what is the maximum revenue or maximum profit, let us say. Anything higher than 1200, either lower than 1200 you will get 0 rupees or you will get negative. So you will not price lower than 1200. The unit cost is 1200. So you will price higher than 1200. So, if you price at exactly 1200, how many persons buy? C2, C3, C4, three guys buy. But your net profit is 0 because price is 1200. Unit cost is 1200, 0.

If you sell it at 1400, two guys buys, C3 and C4. Your unit profit is 1400-1200 that means 200. Two guys buys, so net profit is 400. On the other hand, if you also sell it in 1600, only one guy buys C4, still you are earning 400 dollars. So, 400 is the maximum possible. Either you price it at 1400 or you price it at 1600, 400 dollars is the maximum that you would gain. Then can you do the same operation. Please please stop this video at this point, please stop this video at this point and do the same operation for monitor.

I want you to do it on your own. So please stop this video at this point and do the same operation for the monitor and put the maximum possible profit at that particular point. So, if you have done this, if you have not done this, please pause now. And if you have done this, then you will know that ok see, so for 500 dollars, so 600 dollars if I sell, so 100 dollars profit, three guys are buying. So 300 dollars, if I sell it at 800 dollars then two guys are buying, 300*2=600 dollars. So that is the maximum possible basically.

So, 600 dollars is the maximum possible value that I can generate. So the total maximum profit is thousand. Now you see that everybody is willing to pay 2000 dollars for the bundle. And my cost is basically, so my cost is basically 700 dollars, so 300 dollars profit I make if I sell it at 2,000 dollars. So four guys buy. Each I am giving 300 dollars profit, so 1200 dollars. If I sell it individually, 1,000 dollars. If I sell it in a bundle, 1200 dollars.

So this is something that is bundling where I can do anything. I will actually not price it like this and I will price it like, on the other hand if by chance it was same, if by chance this was

600, by chance this value was 600, then I would have gone 2,000 or 1800, so difference is 200. For four guys it could have been 800. So 800 would have been the maximum thing for bundling and if I have 600, then the maximum thing that would have been here was also 400. You check that I would either sell it at 1,000 rupees or sell it at 800 rupees. If 800 rupees I sell, then C2 and C1 buys I earn 400 rupees.

If 1,000 rupees I sell, still I earn 400 rupees. So, 400+400=800. So here I can sell in both ways. It does not matter, it is a mixed bundling. So mixed bundling means when both individual price and the bundling price co-exist. When it is not, when only bundling prices are there, individual prices are not there, then that is called pure bundling. So the previous example, if by chance it was 400, I could have got for pure bundling because they can coexist, I can do a mixed bundling.

So, that is all for bundling. That is a very new and, very new thing and we will try to see that how with bigger data sets this can be solved when we go for module five which is Advanced Pricing. In this particular rest of the module, we will do a little bit of Demand Forecasting. Thank you very much for being with me and I will meet you in the next video when we come back with more interesting topics. Thank you.